



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,642	02/25/2005	Toshio Nakane	1226-109	8456

23117 7590 12/26/2006  
NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER
----------

LISTVOYB, GREGORY

ART UNIT	PAPER NUMBER
----------	--------------

1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/26/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/525,642

Applicant(s)

NAKANE ET AL.

Examiner

Gregory Listvoyb

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1- 13, rejected under 35 U.S.C. 102(b) as being anticipated by Linstid, III et al (US Patent 6222000), herein Linstid.

Linstid discloses amorphous wholly aromatic polyester amide exhibiting optical anisotropy obtained by copolymerizing:

- A 4-hydroxybenzoic acid-15-60%, preferably 20-40%
- B 2-hydroxy-6-naphtoic acid 15-60%, preferably 20-40%
- C p-aminophenol 5-20%, preferably 10-15%
- D isophthalic acid 7-15 %, preferably 10-15%
- E terephthalic acid 5-20% , preferably 10-15% (Columns 3-4)

The A/B ratio is always within the range of 0.15 to 4.0. The content of Isophthalic acid is always 35% or higher of content of Terephthalic acid. The content of bending monomer (Isophthalic acid) is 7-15%, meeting the limitation (2) of Claim 1.

Glass transition temperatures, of the above copolymers are about 150C (Column 6, line 5), whereas melting points  $T_m$  are not observed (Column 5, line 65). DSC measurements are made at 20 C/min temperature rising rate (Column 17, line 45).

Regarding Claim 2, Isophthalic acid has 1,3 phenylene skeleton.

In reference to Claims 6 –12, Linstid teaches that the above liquid crystal copolymers may be used in combination with polyolefins, (Example 26, Column 24 and Column 3, line 10) for production of films, sheets, fibers, multi-layer laminates, blow-molded containers and other articles. (Column 16, line 20).

### ***Claim Rejections - 35 USC § 103***

Claim 13 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Linstid in combination with Furuta et al (US Patent 5612101)

Linstid discloses amorphous wholly aromatic polyester amide exhibiting optical anisotropy (see discussion above). The reference does not specify that polyethylene in the composition is high density polyethylene. Also, Linstid did not teach that blow-molded container, produced with his copolymer is a fuel tank.

Hence attention directed towards the Furuta reference. Linstid and Furuta are analogous, because they are from the same field of endeavor, utilizing compositions based on liquid crystal copolymers.

Regarding Claim 13, Furuta discloses that polyethylene in his composition is high density polyethylene (HDPE) (Example 6, column 17).

Since HDPE has much better mechanical properties than LDPE due to its higher crystallinity it would have been obvious to a person with ordinary skills in the art to use HDPE with Linstid copolymers for high end applications, such as large blow molded containers.

Regarding Claim 14, Furuta discloses that his composition can be processed into a fuel tank (Comparative Example 6, Column 18).

Since Linstid composition has an exceptional mechanical and barrier properties and ability to be processed by blow molding, it would have been obvious to a person with ordinary skills in the art to use a composition based on Linstid copolymers for manufacturing of fuel tanks.

***Double patenting***

Claim 1-14 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-5 and 12-25 of copending Application No. 10/538845. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Although the conflicting claims are not identical, they are not patentably distinct from each other, because the Application No 10/538845 claims the composition based on the same liquid crystal polymer, which is fully encompassed by the claims of present Application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb  
Examiner  
Art Unit 1711

\*\*\*



James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700

Application/Control Number: 10/525,642

Page 7

Art Unit: 1711